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March 15, 2012

STATE WATER RESOURCES CONTROL BOARD
Attn: Charles R. Hoppin, Chair
1001 I Street
Sacramento, CA 95812-0100

RE: Monitoring Well Retention – Low Threat UST Closure Policy

Dear Mr. Hoppin:

Reference is made to the proposed Low Threat UST Closure Policy and to the section titled Monitoring Well Destruction.

The purpose of this correspondence is to recommend to the SWRCB that, as a reasonable alternative to wholesale Monitoring Well destruction, the SWRCB consider leaving a select number of wells on-site to verify that natural attenuation of residual contamination is actually taking place as projected. Three (3) monitoring wells, sampled annually or bi-annually, may be a workable alternative to provide adequate safeguards to property owners with minimal costs.

Absent a process to verify the natural attenuation rate, the ability to determine if natural attenuation is effective will have been foreclosed.

Exposure to residual contamination in excess of water quality standards for a longer time period will extend uncertainty for legal liability and financial burdens with the onus on property owners, not Responsible Parties, to "prove" when the site meets published compliance standards.

There will be significant indirect impacts socially, economically and cumulatively to the property owners and to the community caused by the SWRCB decision to alter current environmental practices and to destroy all wells.

RELEVANT SWRCB PUBLICATIONS

In order to examine this issue, two publications issued by the State Water Resources Control Board have been reviewed.

January 31, 2012 DRAFT of the Low-Threat UST Closure Policy ("Policy")

DRAFT Substitute Environmental Document ("SED")

As presently written in the proposed Policy, “All wells and borings installed for the purpose of investigating, remediating, or monitoring the unauthorized release shall be properly destroyed prior to case closure unless a property owner certifies that they will keep and maintain the wells or borings in accordance with applicable local or state requirements.” There are two objections to this practice.

1) As stated in the SED, the Cal Codes Regs, tit. 23, 2722, subd (a), identifies the components of corrective action to include **verification monitoring**. There is no provision for verification monitoring in the proposed Policy.

The SED references Resolution 92-49 in a discussion on best water quality that states, in part, “Any alternate level of water quality less stringent that background water quality must … not result in water quality less than the prescribed water quality control plan for the basin within which the site is located.” Further, “Resolution 92-49 does not require that the requisite water quality be met at the time of case closure; it specifies compliance with cleanup goals and objectives within a reasonable time frame.” There is no definition of “reasonable time”.

The SED states, in part, “Agencies qualifying for such exemptions must still comply with CEQA goals and requirements including the requirement to avoid significant adverse effects on the environment where feasible. Agencies must also evaluate environmental effects, including cumulative effects … and provide **mitigation monitoring**.”

SED section 18 Mandatory Findings of Significance, “Redevelopment” stated that “Many petroleum-impacted sites that are subject to the proposed Policy are developed parcels of land, so closure of cases on these sites will not lead to redevelopment.” This is flawed. First, the number of service station sites has decreased significantly over time. Statistics from the U.S. Census Bureau Indicate that between 1999 and 2009 the number of California service stations declined from 8937 to 7420; a 17 % decrease. Second, the existence of residual contamination can limit the opportunities for redevelopment.

2) Additionally, the Policy is limited to sites that are in the monitoring phase. This will “cause regulatory agencies to close cases with more petroleum left in place than with current practices.” “This would cause petroleum to remain in the subsurface subject to natural attenuation processes for a longer period of time.”

Surprisingly, the shift to an emphasis on natural attenuation is coupled with a Policy to destroy all monitoring wells, which forecloses any possibility of determining whether the natural attenuation rate is occurring at projected levels, whether subsurface conditions have deteriorated, or whether the plume has migrated under adjacent sites.

The result in the implementation of this Policy is to increase the time frame for property owners to obtain closure; not only environmental closure, but closure of liability and financial burdens.

As drafted, the burden to maintain the wells is upon the property owner to take affirmative action to retain a monitoring well according to local and state requirements. The burden to maintain the wells should be placed upon the Responsible Party, as identified by the governmental agency having jurisdiction over the property in question.

As drafted, uncertainty remains for an extended period of time that will limit the rights of a property owner to enjoy a full range of normal property rights. Gone is the ability to install an on- site groundwater well, construct subterranean parking or storage, or re-contour the site for

construction. The uncertainty limits the ability to develop, sell, lease, and/or finance the property.

If a prospective purchaser has two choices to select a “clean” site or to select a site with “residual contamination”, it is not too much of a stretch to predict which site the purchaser will choose. The alternative is for the purchaser to offer a lower price for the contaminated site.

SCIENTIFIC PEER REVIEW

The “sound science” discussion by the Peer Review participants presented scientific issues that require review by the SWRCB prior to adoption of the Policy. The relevant issues and the authors are identified below.

Dr. Pedro J. Alvarez:

1) “The Policy should explicitly recognize that biodegradation of vapors in the unsaturated zone significantly depends on moisture content.”

2) “In principle, I agree that stable or shrinking plumes tend to be low risk, but there should be some minimum data requirements (e.g., number of monitoring wells and time span considered for data analysis) to reliably establish that the plumes are indeed stable or shrinking.”

3) “The technical arguments are often based upon conference papers and other literature that has not been vigorously peer-reviewed.”

4) Howard (1990) statements regarding biodegradation/natural attenuation warranted the evaluation “This is not an authoritative literature source.” Further, “Note that there is still significant debate on the significance of the reported MTBE biodegradation rates.”

5) Dr. Alvarez also raised an issue regarding the possibility of a MTBE plume “detaches from the source”.

Dr. Elizabeth A. Edwards:

1) “The ability to clearly and sufficiently accurately delineate a given plume, with appropriate measurement and sampling strategy, is absolutely key.”

2) Dr. Edwards referenced “challenges related to heterogeneity and seasonal variations (e.g., such as changes in water table depth and flow patterns)”.

3) “Biodegradation constants are also a strong function of temperature.”

4) “Another comment would be to consider the effect of soil moisture. Biodegradation only occurs if there is sufficient moisture in the soil.”

5) In a comment related to the 30-ft exclusion distance in Assertion 5, “However, another way to look at the modeling would be determine what biodegradation rate you would need to achieve the desired attenuation in the given scenarios.”

Dr. Mark A. Widdowson and Dr. John C Little

1) However, the impact of site-specific parameters that could influence results is not always captured by this type of study.

2) Potential concerns related to Assertions 5 through 7 include:

a) Static water table – elevations subject to increases and decreases,

b) Barriers to oxygen exchange – asphalt and concrete result in less oxygen replenishment, and

c) Soil Properties – soil porosity and moisture content factors.

3) "It is recommended to incorporate technical guidance on … methods to verify benzene bioattenuation."

4) "Significant attenuation is observed when the petroleum contaminant source has 2 to 10 feet of clean overlying soil."

Dr. Robert C. Spear:

"The secondary evidence for the processes of stabilization and reduction in concentration in individual monitoring wells includes indicator parameters of bioremediation and quantitative estimates of attenuation rates based upon chemical analysis of dissolved species over time."

REASONABLE ALTERNATIVES

The SWRCB is obligated to examine reasonable alternatives; in this case, an alternative to destroying all monitoring wells.

There is a solution that will not break the bank. Retain a limited number of monitoring wells, perhaps as low as three (3) monitoring wells, to measure whether natural attenuation is actually occurring. This is far less costly that forcing a property owner to pursue litigation or to absorb the cost of reinstalling monitoring wells to "prove" to a prospective purchaser or a lender that residual contamination has truly been naturally attenuated.

When measured against the stated environmental impacts associated with continued monitored of site conditions such as waste disposal, greenhouse gas emissions due to traveling to and from the site, and traffic disruptions; the prospect of <u>diminution of property values, future litigation, increased costs of financing, loss of potential clients, or future reinstallation of monitoring wells</u> need to be balanced against any contemporary perceived savings. The UST Cleanup Fund may benefit from improved efficiency; however, the cost to property owners will increase. The Policy shifts the burden to property owners.

Concerns that a monitoring well could impact a deeper aquifer are statistically minimal. Selected monitoring wells under the retention scenario could be carefully designated taking into account any threats to a deeper aquifer. Given the Policy that states the levels of residual contamination are not significant and that the plume must be "stable" or "decreasing", the impact to a deeper aquifer, like all other environmental elements under review, must be weighed against the alternative social, economic, and cumulative indirect costs to a property owner. After all is said, economic resources available for environmental restoration are limited to the property owner as well as the UST Cleanup Fund.

RECOMMENDATION

The recommendation of this memorandum is to allow a limited number of monitoring wells to be left on site in order to verify the rate of natural attenuation of on-site residual contamination that remains in excess of water quality standards. To be specific, based upon site conditions, three (3) wells would be a "target" standard for Responsible Parties and governmental agencies having jurisdiction to agree upon retention of monitoring wells. The frequency of such monitoring could be extended to annual or bi-annual monitoring. An indirect benefit is that a property owner could, if circumstances necessitated, such as a real estate or financial transaction, elect to perform groundwater sampling independent of the Responsible Party.

I thank you your time to review my comments. Should you wish to follow up on these concepts, please feel free to contact me at 805-493-0746 or lsturner@verizon.net.

Larry S. Turner, J.D., M.B.A.

Cc: Frances Spivey-Weber, Vice Chair
Tam M. Doduc, Member
Thomas Howard, Executive Director
Michael A. M. Lauffer, Chief Counsel
Kevin Graves, UST Program Manager